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Claims

1. An AAV vector characterized in that it carries at least one mutation resulting in a heparin-binding motif of a capsid protein being located within aa positions 470 to 592 showing a reduced or eliminated heparin binding function.
2. The AAV vector of claim 1, wherein said mutation results in an amino acid substitution of the capsid protein at aa position:
 - (a) arginine 475;
 - (b) arginine 484;
 - (c) arginine 487;
 - (d) lysine 527;
 - (e) lysine 532;
 - (f) arginine 585; and/or
 - (g) arginine 588.
3. The AAV vector of claim 2, wherein said amino acid substitution is a non-conservative amino acid substitution.
4. The AAV vector of claim 3 with the capsid protein being characterized by at least one of the following amino acid substitutions:
 - (a) R475A;
 - (b) R484A or R484E;
 - (c) R487A or R487E;
 - (d) K527A;
 - (e) K532A;
 - (f) R585E; and/or
 - (g) R588E.
5. The AAV vector of claim 4 with the capsid protein being characterized by the amino acid substitutions R484E and/or 585E.
6. The AAV vector of any one of claims 1 to 5, which is an AAV-2 vector.

7. An AAV particle having a capsid encoded by an AAV vector of any one of claims 1 to 6.
8. A pharmaceutical composition containing an AAV vector of any one of claims 1 to 6 or an AAV particle of claim 7.
9. Use of an AAV vector of any one of claims 1 to 6 or an AAV particle of claim 7 for gene therapy of non-hepatic tissue.
10. The use according to claim 9, wherein said non-hepatic tissue is heart muscle tissue.

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